MISCELLANEA ZOOLOGICA HUNGARICA
Tomus 8. 1993 p. 5–9

The synlophe of *Dessetia moldovensis* (Andreiko, 1963) (Trichostrongyloidea, Heligmosomidae), from the lesser mole rat, *Spalax leucodon* Nordmann, (Rodentia, Spalacidae)

by
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(Received June 10, 1993)

Abstract: The synlophe of *Dessetia moldovensis*, which is the only species in the genus *Dessetia*, parasite of *Spalax leucodon*, is redescribed. The axis of orientation of the synlophe forms an angle of about 70° with the sagittal axis in the middle of the body in both sexes; number of ridges is 11. Maximum number of ridges in both sexes is 16, but they may be observed only before the vulva and before the bursa respectively, where all ridges are with similar dimensions.
Key words: *Dessetia moldovensis* (Nematoda: Heligmosomidae), synlophe morphology, redescription, *Spalax leucodon* (Rodentia), Hungary, Bulgaria

Introduction

Comparing descriptions of the synlophe of *Dessetia moldovensis* (Andreiko, 1963), the only species in the genus *Dessetia*, after Genov & Yanchev (1981) and Genov (1984) on the one hand, and Fig. 10.226 in Durette-Desset (1983) on the other hand, we found difference of 90° in the inclination of the orientation axis of ridges with respect to the sagittal axis. This difference, as well as the insufficient information presented in the descriptions, stimulated the redescription of synlophe of *Dessetia moldovensis* in this paper.

Material and methods

The investigation is based on 2 female specimens collected from *Spalax leucodon* near Hajdúbagos, Hungary, and 3 male and 3 female specimens from *S. leucodon* captured near Varna, Bulgaria.

Cross sections were made from 5 female and 3 male specimens with simple device fixed to a stereomicroscope. The device consists of a stand and an arm with a fragment of a razor blade fixed to it. The sections obtained this way were about 25 μm thick. The sections were mounted on slides in dehydrated glycerol with paraffin ring (Maeseneer & D'Herde 1963). These slides could be studied by immersion.

The slides of the studied specimens are deposited in the Collection of the Hungarian Natural History Museum, Budapest and in the Collection of the Institute of Parasitology, Bulgarian Academy of Sciences (IPBAS).

Description of synlophe

Description of the synlophe of Bulgarian specimens

The ridges begin immediately behind the head vesicle and disappear before the bursa of males and before the anus of females (Figs 1, 2). Number of ridges varies depending on position of transverse section. Maximum number of ridges in both sexes is 16, but they may be observed only before the vulva and the bursa respectively, where all ridges are with similar dimensions. In both sexes two ridges appear immediately after the head vesicle: one ventral and one left ventrolateral ridge (Fig. 1B). At the level of the posterior part of oesophagus there are 8 ridges (Figs 1C,D,E; 2C,D). At the level of the anterior part of intestine it both sexes the degree of inclination of the orientation axis of ridges is about 50° and their number is 11 (Figs. 1F,G; 2E,F).

In the middle of the body the angle of the orientation axis of the synlophe is about 70°; number of ridges decreases to 9 (Figs 1H; 2G,H). In females number of ridges increases up to 16 in the area before vulva (Fig. 3L); when the number of ridges becomes 12, their dimensions are almost equal with 4 ventral left ridges remaining somewhat bigger which correspond to the ventral left comaretes and their neighbour ridges. In males the number of ridges in the area before the bursa increases up to 16, as in females, but in contrast the ventral right lateral surface in males has no ridges (Fig. 1J,K).

Notes on the synlophe of Hungarian specimens (Fig. 4)

The synlophe of Hungarian specimens is similar to that of Bulgarian specimens. There are some differences in the relative dimensions of the comaretes with respect to the body width. The comaretes of Hungarian specimens are somewhat bigger.

Notes on the general morphology of the species

The description of the species presented by Genov & Yanchev (1981) and Genov (1984) corresponds completely to the material studied by us with the exception of the shape of the head vesicle, the end of spicules and vulval valve (Fig. 5). Spicules have lateral alae at the distal end (Fig. 5B, C). The vulval valve is massive and its anterior part appears as a ventral thickening of the body, while its posterior part is hanging over the vulva. The form of the valve presented in Genov & Yanchev (1981) and Genov (1984) seems to be the result of a strong compression of the body of the studied specimens.

Discussion

The angle of the orientation axis of the synlophe of *Dessetia moldovensis* with respect to the sagittal axis is about 64° in the middle of the body and corresponds to the orientation presented by Durette-Desset (1983) for this species and used in the system of the Trichostrongyloidea. In the description of the synlophe of *D. moldovensis* by Genov & Yanchev (1981) and Genov (1984) lateral chords were not mentioned and the orientation used by them remains uncertain. The maximum number of ridges in these first descriptions were not discussed, but they were

present in the figures (for both sexes 15 ridges could be counted in the posterior end of body). The differences between our data and the descriptions and figures of Genov & Yanchev (1981) and Genov (1984) concerning the morphology of the synlophe within the anterior third of body could be explained with the thicker sections, obviously used by these authors, which could not be studied at high magnifications.

According to Genov & Yanchev (1981) and Genov (1984) the synlophe of *Dessetia* is very different from the synlophe of the other genera in Heligmosomidae.

The new data on the morphology of the synlophe of *D. moldovensis* presented here [e.g. unequivocal determination of the angle of the orientation axis of ridges to the sagittal axis; presence of a small ridge in middle of the ventral surface before the comaretes; presence of 2 ventral left comaretes in the anterior and 3 in the posterior part of body with gradient in size from right to left; confirmed maximum number of ridges (16)] characterize completely the species and the genus and provide reasons to confirm the status of *D. moldovensis* in the family Heligmosomidae. On the basis of the characteristics of the synlophe of *D. moldovensis* this species could be considered as an evolved *Heligmosomoides*.

The observed differences between previous descriptions and data presented in this paper indicate that study of the synlophe requires cross sections from all parts of the body and application of the technique developed by Maeseneer & D'Herde (1963), which allows the study of slides by immersion.

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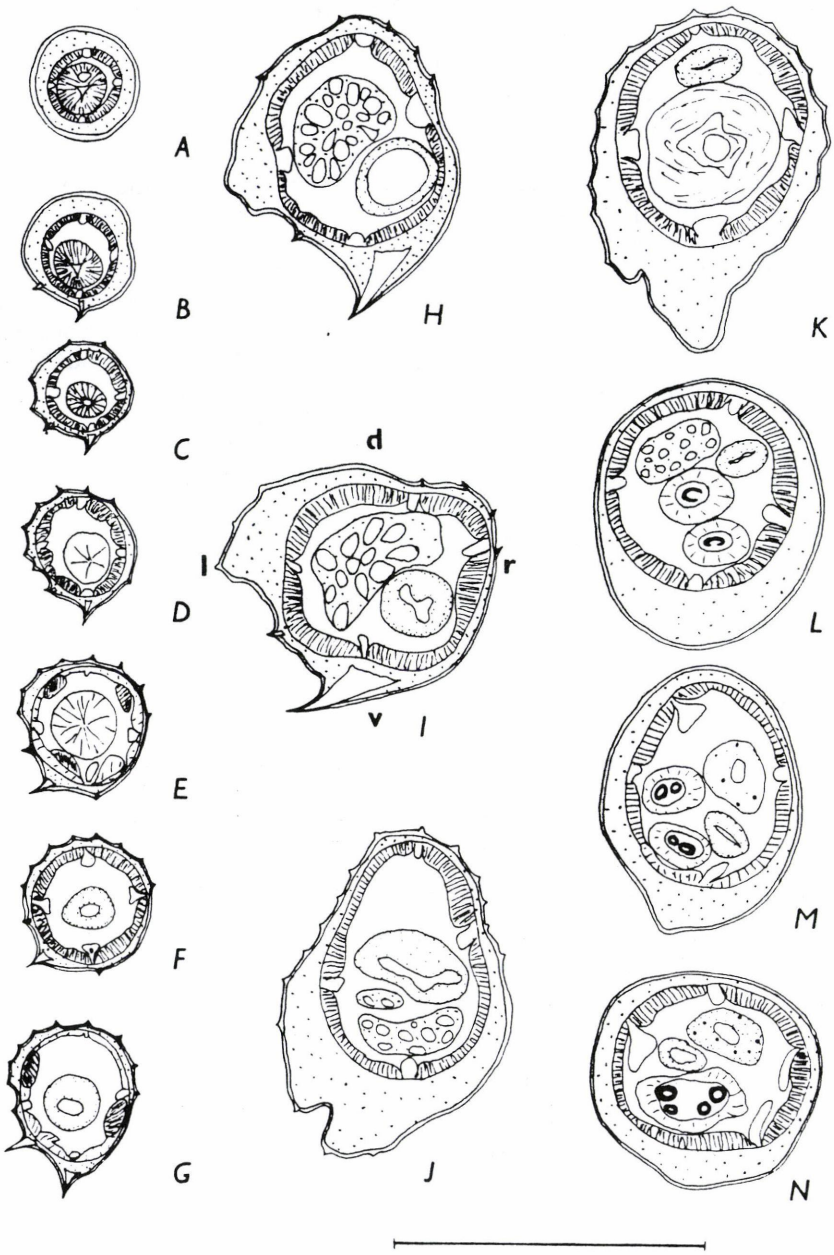

Fig. 1. *Dessetia moldovensis*, transverse sections, Bulgarian materials, male: A = section at head vesicle, B = after head vesicle, C, D, E = at the level of oesophagus; F, G = at anterior part of intestine; H = sections in the middle of the body; I = section at anterior part of the second third of the body; J, K = section at the level before the spicules; L = section at the anterior part of the spicules; M = section in the middle of the spicules; N = section at the level of the fusion of the spicular sheath. Scale-bar 50 μm. The orientation of the cross-sections is corresponding to this shown on section I (d = dorsal; v = ventral; l = left; r = right)

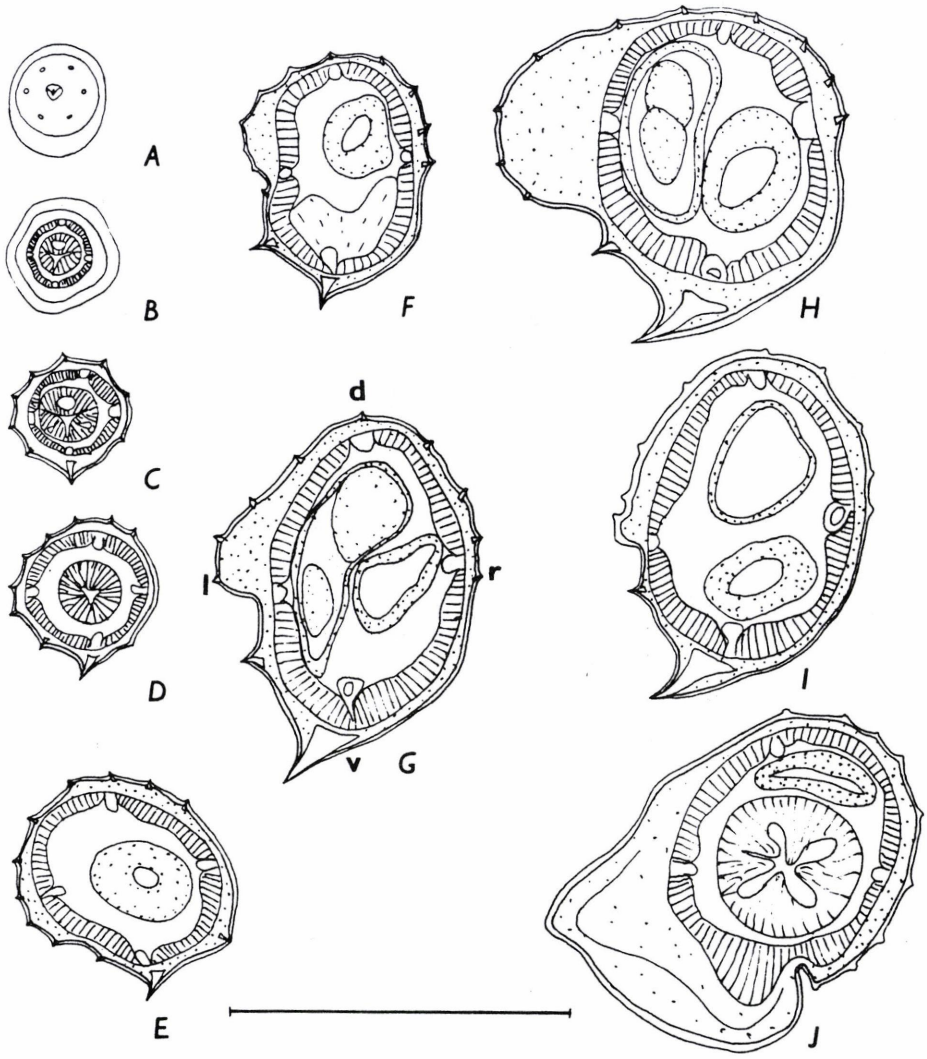

Fig. 2. *Dessetia moldovensis*, transverse section, Bulgarian materials, female: A = apical section, B = section at head vesicle, C, D = at level of oesophagus; E, F, G = at anterior part of intestine; H = sections in the middle of the body; I = at the anterior part of the second third of the body; J = before the vulva. Scale-bar 50 μm. The orientation of the cross-sections is corresponding to this shown on section G (d = dorsal; v = ventral; l = left; r = right)

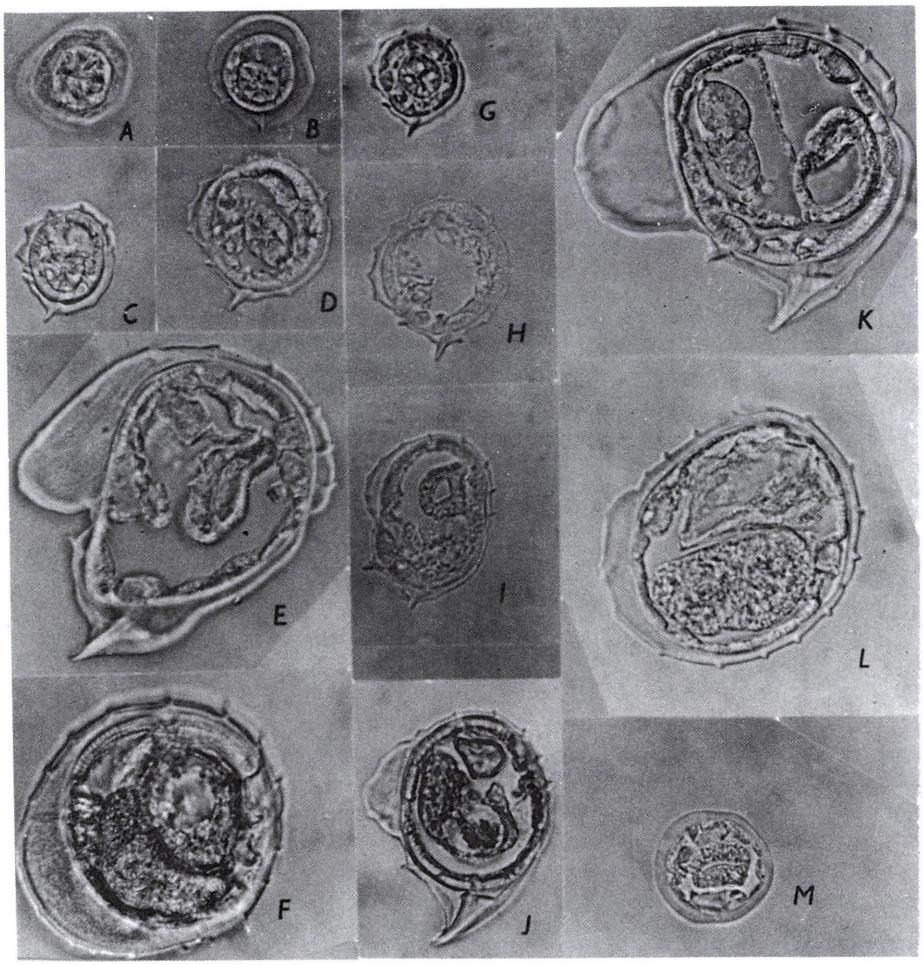

Fig. 3. *Dessetia moldovensis*, photograph, transverse section, Bulgarian materials, A-F = male, G-M = female; A = section at head vesicle, B = after head vesicle, C, D, = at level of oesophagus; E = in the middle of the body; F = before the bursa; G = at level of oesophagus; H, I, J = at anterior part of intestine; K = sections in the middle of the body; L = before the vulva; M = after the vulva

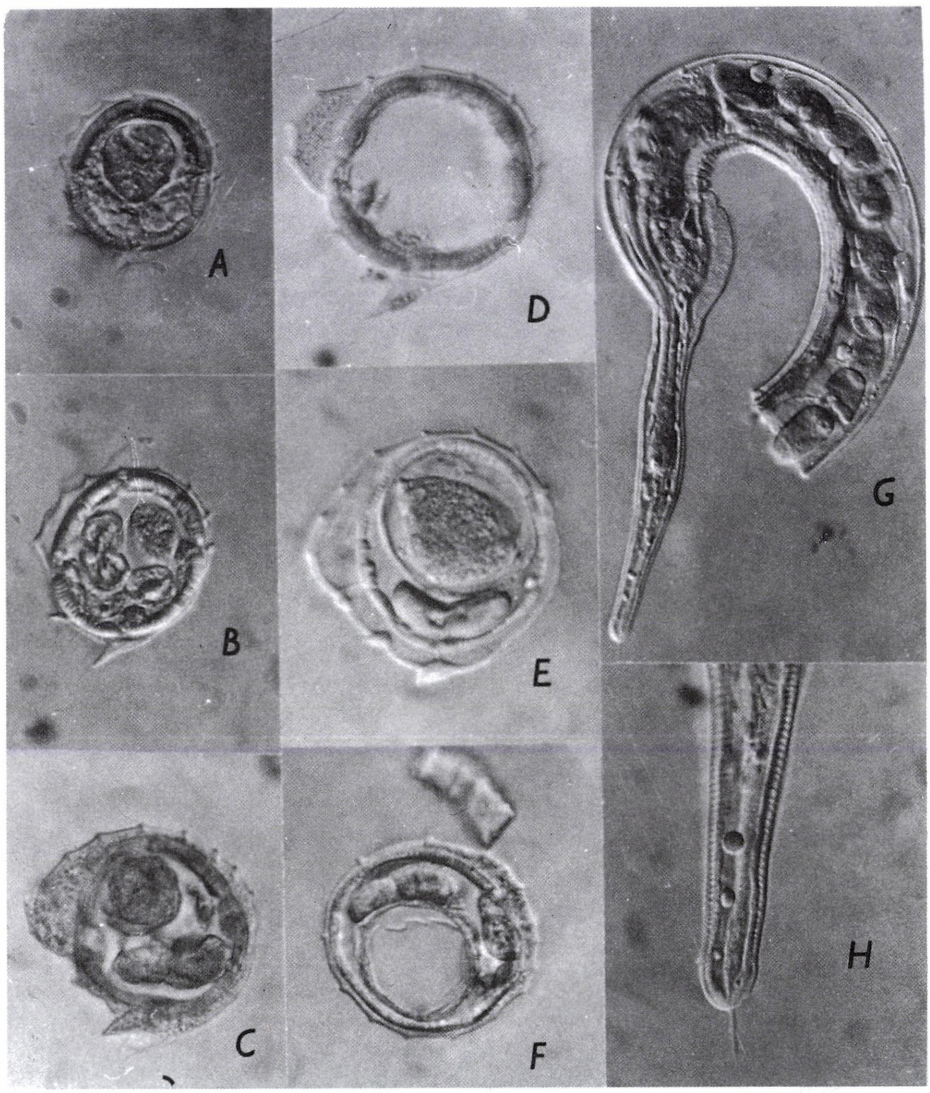

Fig. 4. *Dessetia moldovensis*, photograph, Hungarian materials, female; A-F transverse section; A = at level of oesophagus; B, C = at anterior part of intestine; D= in the middle of the body; E = the end of second third of the body; E = before the vulva; G = posterior end of the body, H = spine of tail

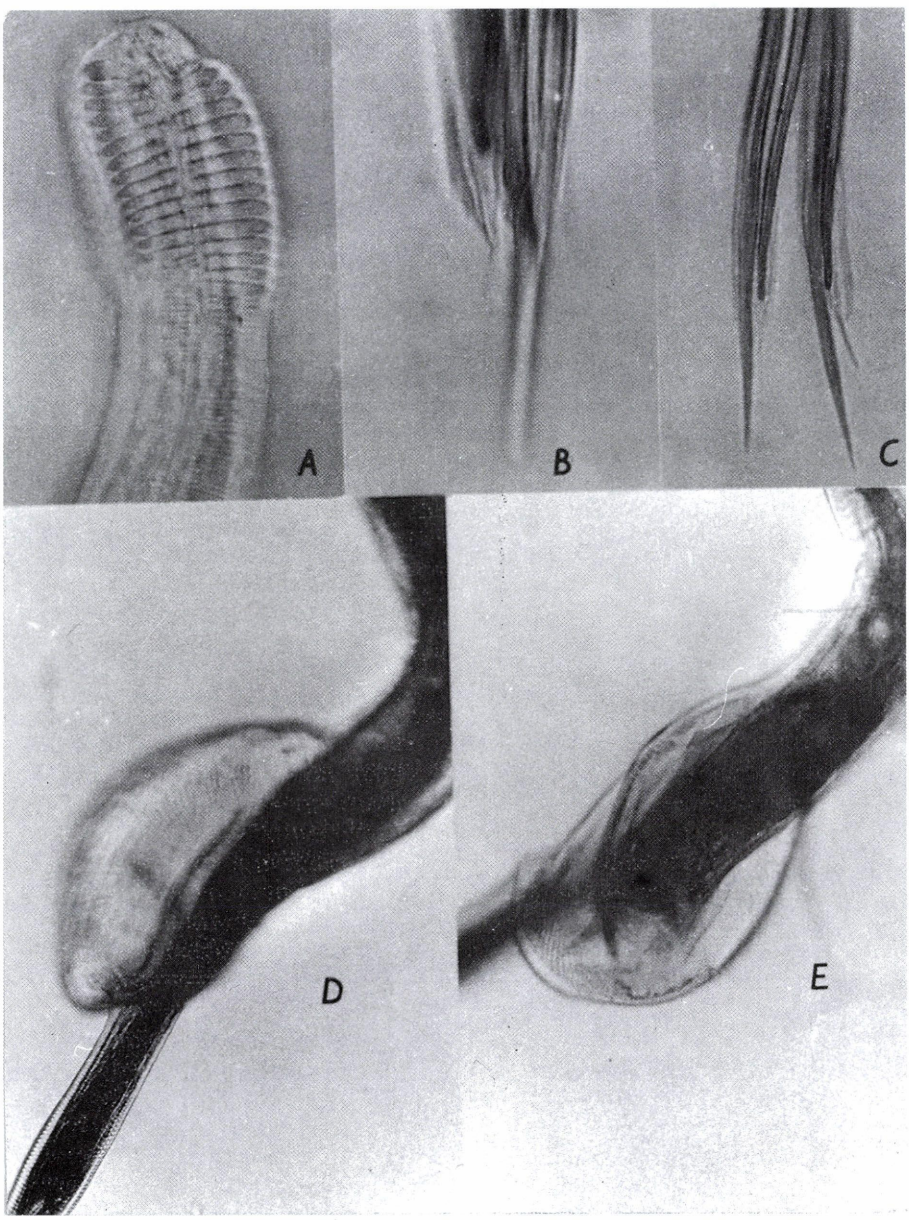

Fig. 5. *Dessetia moldovensis*, photograph, Bulgarian materials: A, D, E = female spicule, B, C = male spicule, D = vulval valve, lateral view; E = vulval valve, ventral view